

# USDA-Natural Resources Conservation Service Ecological Site Characterization Report

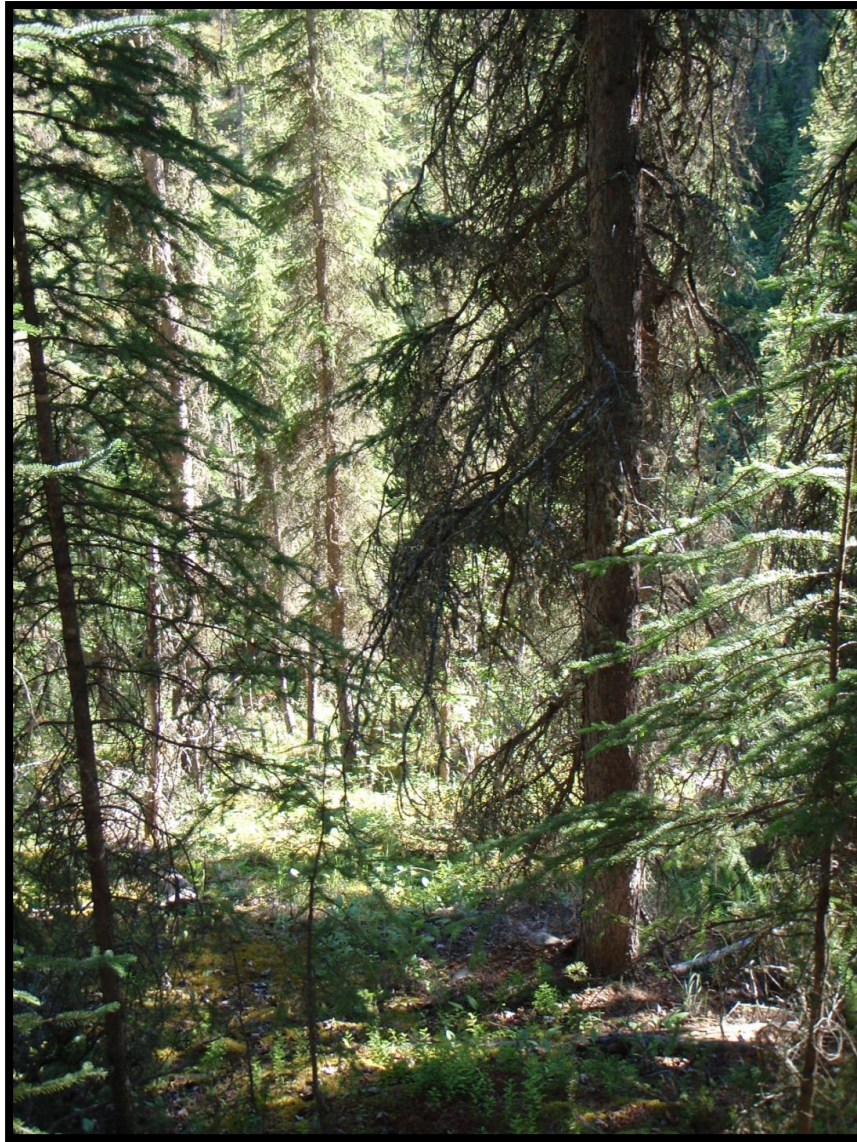
Ecological Site Description ID:	F231XY110AK		
Ecological Dynamics of the Site:			
<p>This boreal ecological site occurred on steep south facing escarpment slopes (i.e. slopes averaged 65%). Soils had mixed lithology, were well-drained, and were considered more stable then ecological site R231XY109AK. While ecological site F231XY181AK was similar, F231XY110AK lacked a thick organic mat and abundant moss ground cover. These differences were attributed to the site occurring on a warmer and drier landscape position. For community phase 1.1, soils were classified as haplocryepts and were composed of organic matter over gravelly colluvium.</p> <p>Fire was a disturbance regime that resulted in 4 documented phases. Fire is a natural and typically unmanaged disturbance regime. The typical fire return interval for coniferous forests of interior Alaska is approximately 100 years.</p>			
State and Transition Diagram:			
<div><div>1.0 Reference State</div><div>Boreal forest gravelly slope dry</div><div>F231XY110AK</div><div><div><div>1.1 (HCPC) White spruce-russet buffaloberry-common juniper-kinnikinnick forest</div><div>1.2 b</div><div>1.2 (2FL) Mixed white spruce/aspen-prickly rose-mixed grass-forest</div><div>1.3 b</div><div>1.3 (2FM) Aspen-mixed shrub-mixed herbaceous-forest</div><div>1.3 a</div><div>1.4 (2FE) Regenerating aspen-prickly rose-mixed ericaceous scrub-scrubland</div><div>1.4 a</div></div><div><div>1.1 a</div><div>1.2 a</div></div></div></div>			
State ID Number:	1	State Name:	Reference
State Narrative:	Phases within the reference state were grouped on the structure and dominance		

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	<p>of deciduous and coniferous trees which was believed to directly relate to time since last fire event.</p> <p>Due to the steepness and dominance of a white spruce forest, a high-severity fire regime was considered to be the typical fire disturbance for this ecological site. In a high-severity fire, large proportions of the organic mat are consumed and mineral soils will typically be exposed. While many pre-fire species likely regenerate after fire, conditions are suitable for the establishment and growth of species with wind-blown seed (e.g. paper birch, fireweed, willow).</p> <p>The fire return interval plays a large role in the structure of the observed forest. Longer fire return intervals favors development of community phases 1.1, while shorter fire return intervals favor development of community phases 1.2 and 1.3.</p> <p>Tall trees are defined as trees growing &gt;40' in height, medium trees are defined as growing 15-40' in height, while stunted and regenerative trees are defined as growing less than 15' in height. Tall shrubs are defined to grow greater than 10' in height, medium shrubs are defined to grow 3-10' in height, low shrubs are defined to grow 8" – 3' in height, and dwarf shrubs are defined to grow less than 8" in height.</p>
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Photo 1.1



Community Phase  
Number:

1.1

Community  
Phase Name:

White spruce-russet buffaloberry-common juniper-  
kinnikinnick forest

Community Phase Narrative:

The dominant vegetation was a mixture of tall and medium sized *Picea glauca*, a mixture of shrubs, and a mixture of forbs. While *Picea glauca* was the most common tree species (~55% cover), *Populus tremuloides* was also observed as a minor component within stands. Shrubs were evenly split between the tall, medium, short, and dwarf stratum (combine ~40% cover). The most common tall shrub was *Salix sp.*, the most common medium shrub was *Shepherdia canadensis*, the most common low shrub was *Juniperus communis*, and the most common dwarf scrub was *Arctostaphylos uva-ursi*.



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Commonly observed forbs included *Geocaulon lividum*, *Equisetum scirpoides*, and *Mertensia paniculata*. Graminoids and lichens were typically minor vegetative components. Feathermoss were at times an abundant ground cover. This phase had one observation.

## Community Pathways

Pathway Number	Pathway Name & Description
1.1a	Fire. Field observations resemble communities associated with high-intensity fires. For this phase, white spruce was the dominate tree species. This phase likely had the longest fire return interval.

Photo 1.2



Community Phase Number:	1.2	Community Phase Name:	Mixed white spruce/aspen-prickly rose-mixed grass-forest
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Community Phase Narrative:

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The dominant form of vegetation was a mixture of tall and medium sized trees. While *Populus tremuloides* and *Picea glauca* were the dominant tree species present (combined ~35% cover), *Betula neoalaskana* was also observed. Shrub cover (combined ~40% cover) primarily occurred in the low shrub stratum and the most common species was *Rosa acicularis*. Graminoids and forbs were abundant (combined ~30% cover). Common graminoids were *Calamagrostis canadensis* and *Calamagrostis purpurascens*. Forb diversity was high but no species had abundant cover. Feathermoss was commonly observed as a ground cover. This phase had 7 observations.

## Community Pathways

Pathway Number	Pathway Name & Description
1.2a	Fire.
1.2b	Normal time and growth without fire. Aspen are eventually replaced by white spruce resulting in community phase 1.1. Aspen was commonly observed as standing dead trees, which was presumed to signal that the community was transitioning into a white spruce dominant phase. Phase 1.2 is thought to have a shorter fire return interval then phase 1.1 and a longer fire return interval then phase 1.3.

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Photo 1.3



Community Phase  
Number:

1.3

Community  
Phase Name:

Aspen-mixed shrub-mixed herbaceous-forest

Community Phase Narrative:

The dominant vegetation was a mixture of tall, medium, and regenerating *Populus tremuloides* (totaling ~40% cover). Both *Picea glauca* and *Betula neoalaskana* were observed but not considered a dominant component within the tree stand. Medium, low, and dwarf shrubs were abundant (totaling ~40% cover). Common medium and low shrubs were *Rosa acicularis* and *Shepherdia canadensis*, while common dwarf shrubs were *Arctostaphylos uva-ursi* and *Vaccinium vitis-idaea*. Graminoids and forbs were evenly distributed (combined for ~35% cover). A common graminoid was *Calamagrostis canadensis*, while a commonly observed forb was *Chamerion angustifolium*. Moss and lichen cover were both minimal. This phase had 10 observations.

Community Pathways

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Pathway Number	Pathway Name & Description
1.3a	<p>Fire.</p> <p>Stands of aspen are less likely to burn and fire is less likely to spread when compared to stands dominated by spruce. Regardless, stands of paper birch and/or aspen were observed to burn within the study area. If community phase 1.3 burned, the resulting community would resemble community phase 1.4.</p>
1.3b	<p>Normal time and growth without fire. White spruce will grow and become a codominate with aspen, which would result in a community resembling community phase 1.2. Phase 1.3 is thought to have a shorter fire return interval then phase 1.2 and a longer fire return interval then phase 1.4.</p>



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Photo 1.4



Community Phase  
Number:

1.4

Community  
Phase Name:

Regenerating aspen-prickly rose-mixed ericaceous  
scrub-scrubland

Community Phase Narrative:

While the dominant vegetation was regenerating *Populus tremuloides* (totaling ~35% cover), *Picea glauca* and *Betula neoalaskana* were also observed. The majority of shrub cover occurred in the low and dwarf stratus (~40% cover) and commonly observed species included *Rosa acicularis*, *Arctostaphylos uva-ursi*, and *Vaccinium vitis-idaea*. Graminoids and forbs combined for ~30% cover. While high in diversity, no graminoid or forb species dominated this community phase. Lichen and



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moss cover was evenly split and covered ~30% of the ground surface.

This phase had 8 observations.

## Community Pathways

Pathway Number	Pathway Name & Description
1.4a	Normal time and growth without fire disturbance. The aspen present within the sampled sites should mature and the community should resemble community phase 1.3. While this phase may burn, the resulting community would likely resemble community phase 1.4.

## Practices (list practices from FOTG, section IV)

### Selected practices: